

AMENDMENTS TO THE SPECIFICATION

Please amend the paragraph on lines 21-23 of page 59 as follows:

Alignment of the genomic sequence for ER α and published mRNA sequences for ER α show the gene consists of 14 exons and covers 446,296 bp of genomic sequence (Figure 7; ~~Table 3~~).

Please amend the paragraph on lines 17-21 of page 60 as follows:

By examining the ER genomic sequences using the Celera Genome Browser, we were able to identify a separate gene contained entirely within intron 9 of ER β . This gene was identified as human synaptic nuclei expressed gene 2 (syne-2) and was shown to cover over 50 Kb of genomic sequence and consist of 21 exons, all of which conform to the GT/AG splice site consensus sequence (~~Table 4~~). The syne-2 gene is located on the antisense strand of ER β .

Please delete Table 3 (on pages 60-61), Table 4 (on page 61), the paragraph (which describes Table 3) on lines 24-26 of page 60, and the paragraph (which describes Table 4) that is located between Tables 3 and 4.

Please amend the “Description of the Figures” section (on page 16) as follows:

DESCRIPTION OF THE FIGURES

Figure 1. Complete genomic sequence (SEQ ID NO:1) of the estrogen receptor alpha gene.

Figure 2. Sequence polymorphisms found in the ESR-alpha genomic DNA (nucleotide position is based on the sequence provided in Figure 1.)

- (a) SNPs in Liverpool clinical tissue samples.
- (b) SNPs in Coriell Diversity panels.
- (c) SNPs in Liverpool Control Population
- (d) PCR primers.
- ~~(e) Sequencing primers.~~

Figure 3. Amino acid sequence (SEQ ID NO:2) of the estrogen receptor alpha protein.

Figure 4. Estrogen Receptor Haplotypes (See Haplotype Section).

- ~~(a) Liverpool samples from 48 patients, and each patient had a tumor and blood sample typed. Coriell samples were control.~~
- (b) The non-singleton haplotype data fitted to a neighbor-joining tree (L is Liverpool sample).

Figure 5. The domain structure of the ESR1 protein and the positions of the SNPs disclosed herein.

Figure 6. The distribution and frequency of many of the SNPs of the present invention.

Figure 7. A graphic representation of the human ESR1 locus.

- (a) Complete structure of the human estrogen receptor alpha ($ER\alpha$). Exons are represented by filled boxes and introns by horizontal lines.
- (b) Order and names of contigs used to complete the genomic sequence. GA numbers represent Celera contig numbers. Research Genetics BAC clones are represented by standard plate and well numbering.

Figure 8. ESR-alpha SNPs Genotyping Results a) in Coriell Samples, b) in Liverpool Samples (T= tumor sample, B= blood sample, LC=Liverpool controls), c) in Liverpool Control sample

Figure 9. ESR-alpha exons with SNPs. (see Figure 2 for “N”, “C”, “T”, “A”, “S” representations). Underlined sequences indicate the primer sequences.